

APPROVED	D.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

ant(s): Christian Fritz et al.
OF YNES, ESSENTIAL BACTERIAL GENES AND
POLYPEPTIDES

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1 ATGATTACAATAGTTTTTATTAATCCTAGCCTATCTGCTGGGTTCCGATTCATCTGGTCTCTGGATTGGACAAGTATTCTTCAAATCAATCTACGGAGC 100
TACTAATGTTATCAAAATATTAGGATCGGATAGACGCCAAGCTAAGGTAGACCAGAGACCTAACCTGTTTCATAGAAAAGTTTAGTTAGATGCGCTCG

1 M I T I V L L I L A Y L L G S I P S G L W I G Q V F F Q I N L R E H 34

101 ATGGTTCTGGTAACA CTGGAA CGAACCAACCTTCGCA TTTTAGGTAAGAAAGCTGGTATGGCAACCTTTGTGATTGACTTTTTCAAAGGAACCCCTAGC 200
TACCAAGACCAATTGTGACCTTGTGCTGGTGTGAAGCGTAAATCCATTCTTTCGACCATAACCGTTGGAAACACTAACTGAAAAGTTTCTTTGGGATCG

35 G S G N T G T T N T F R I L G K K A G M A T F V I D F F K G T L A 67

201 AAGCTGCTTCGGATTATTTTTCATCTACAAGCGGTTTCTCCTCTCATCTTTGGACTTTTGGCTGTTATCGGCCATACCTTCCCTATCTTTGCAGGATTT 300
TTGGACGAAGGCTAATAAAGTAGATGTTCCGCAAGAGGAGAGTAGAAGCTGAAAACCTGAAAACCGACAATAGCCGTA TGGAAGGGATAGAAAACGTCCTTAAA

68 T L L P I I F H L Q G V S P L I F G L L A V I G H T F P I F A G F 100

301 AAAGTGGTAAGGCTGTGCAACCAAGTGTGGAGTGATTTTCGGATTTCGGCTATCTTCTGTCTCTACCTTGGGATTATCTTCTTTGGAGCTCTCTATC 400
TTTCCACCATTCGACAGCGTTGGTCAGACCTCACTAAAGCCTAAACGCGGATAGAAACAGAGATGGAAACGCTAATAGAAGAAACCTCGAGAGATAG

101 K G G K A V A T S A G V I F G F A P I F C L Y L A I I F F G A L Y L 134

401 TTGGCAGTATGATTTCATGTCAGTGTCAAGCATCGATTGGGCTGTTATCGGGTTCTGCTCTTCCACTTTTGGTTTATCCTGAGTAACATGA 500
AACCCTCATACTAAAGTGACAGATCACAGTGTCTAGCTAACGCCGACAAATAGCCCCAAGACGAGAAAGGTGAACCAAAATAGGACTCATTTGATACT

135 G S M I S L S S V T A S I A A V I G V L L F P L F G F I L S N Y D 167

501 CTCTCTTCATCGCTATTATCTTAGCACTTGTGATTATCATTCGTATAAGGACAAATATAGCTCGTATCAAAAATAAACTGAAAATTTGGTC 600
GAGAGAGAAGTAGCGATAATAGAAATCGTGAAACGATCAAACTAACTAGTAAGCAGTATTCCTGTTATATCGAGCAGTATTTTATTTTGACTTTTAAACCCAG

168 S L F I A I I L A L A S L I I I R H K D N I A R I K N K T E N L V 200

601 CCTTGGGATTGAACCTAACCCATCAAGATCCTAAAAATAA 642 SEQ ID NO:2
GGAACCCCTAACTGGATTGGGTAGTTCTAGGATTTTATTT 642 SEQ ID NO:11

201 P W G L N L T H Q D P K K • 213 SEQ ID NO:1

FIG. 1

APPROVED	O.G. FIG.	
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Inventor(s): Christian Fritz et al.

OF YNES, ESSENTIAL BACTERIAL GENES AND
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1 ATGTTAATGCTTTATTGATTATTTGGCCTACTTGATAGGAGCAATCCATCTGGCTTAATTGTTGGGCAAGCTTGCCAAAGGAATTGATATTCGGGAGC 100
TACAATTAAAGCAATAACTAATAAAACCGGATGAACCTATCCGTCTGAAGGTAGACCGAATTACACCCGTTTCGAAACCGTTTCCTTAACCTATAAGCCCTCG

1 M L I A L L I I L A Y L I I G S I P S G L I V G K L A K G I D I R E H 34

101 ACGGAAGCGGCAACTTAGGCGCTACCAATGCAATCCGTACATTGGGTGTAAAGCTGGTTGGTCTGTCATAGCCGGAGATATTTTGAAGGAGCACTGGC 200
TGCCCTCGCCGTTGAATCCGCGATGGTTACGTAAAGCATGTAAACCCACATTTTCGACCAAGCCAGCAGTATCGGCCCTCTATAAACTTTCCCTGTGACCG

35 G S G N L G A T N A F R T L G V K A G S V V I A G D I L K G T L A 67

201 AACTGCAATGTCCTTTCTCATGCAATGTTGATATTCACCGCTTCTTGCCAGGAGTCTTTGCGGTTTATAGGCCACGTTTCCCATCTTCGCCAAATTTAAA 300
TTGACGTAAACGGAAAGAGTACGTACAACTATAAGTGGGGAAGAACGTCCTCAGAAACGCCAAATCCGGTGCAAAAGGTAGAGCGGTTTAAATTT

68 T A L P F L M H V D I H P L L A G V F A V L G H V F P I F A K F K 100

301 GGCGGTAAAGCCGTGGCGACATCAGGAGCGGTTTGTCTATTTACGCCCTGTTATTTATCAGCATGGTTGCGGTATTCTTCATCTTTTATACTTGA 400
CGGCCATTTTCGGCACCGCTGTAGTCTCCGCAAAACGATATAAATGCGTGGGACAATAAATAGTGTCTACCAACGCCATAGAAAGTAGAAAAATATGAAC

101 G G K A V A T S G G V L L F Y A P L L F I T M V A V F F I F L Y L T 134

401 CTAAATTTGTTTCTCTCATCGATGTTAAACAGGATCTATACTGTTATATATAGTTTCTTTGTCCATGATACGTATTTATTGATTGTCGTTACCTGCT 500
GATTTAAACAAAGAGAGAGTAGTACAATTGTCCTAGATAGACAAATATATATCAAGAAACAGGTACTATGCATAAATAAATACTAACGCAATGGGACGA

135 K F V S L S S M L T G I Y T V I Y S F F V H D T Y L L I V V T L L 167

501 CACTATTTTGTGATATACAGACACCGAGCGCAACATTAAACGGAATTATCAATAAACAAGCACTAAAGTAAATGGTTATAA 582 SEQ ID NO:4
GTGATAAAACACTATATGTCTGGCTCGCTTGTAAATTTGCTTAATAGTATTTTGTCTGGATTTCATTTTACCAATATT SEQ ID NO:12

168 T I F V I Y R H R A N I K R I I N K T E P K V K W L . 193 SEQ ID NO:3

FIG. 2

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USE OF YNES, ESSENTIAL BACTERIAL GENES AND
POLYPEPTIDES

STRATEGY FOR TARGETED DELETIONS OF GENES IN *S. PNEUMONIAE*

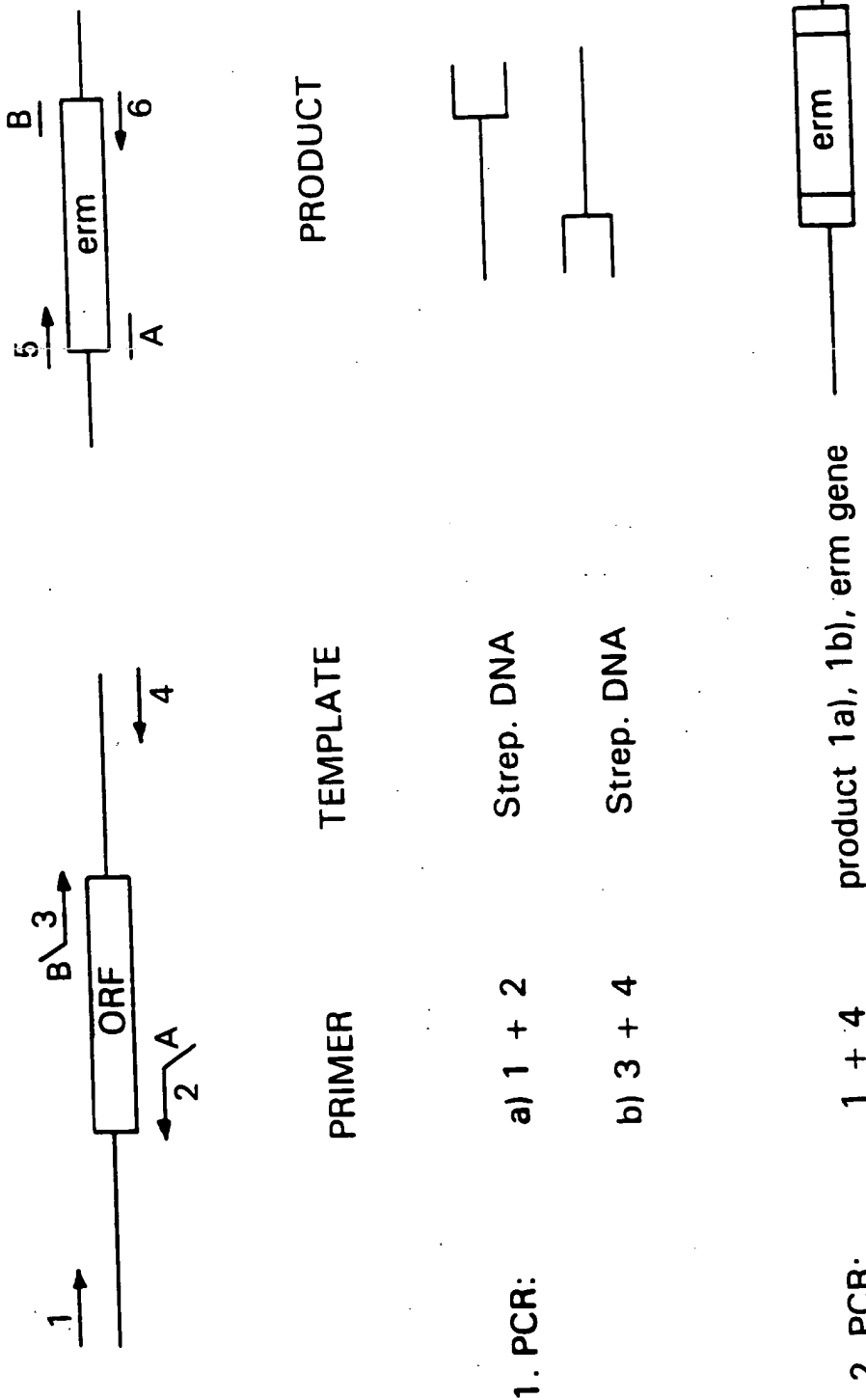


FIG. 3

NON-POLAR GENE KNOCKOUTS IN *S. PNEUMONIAE*

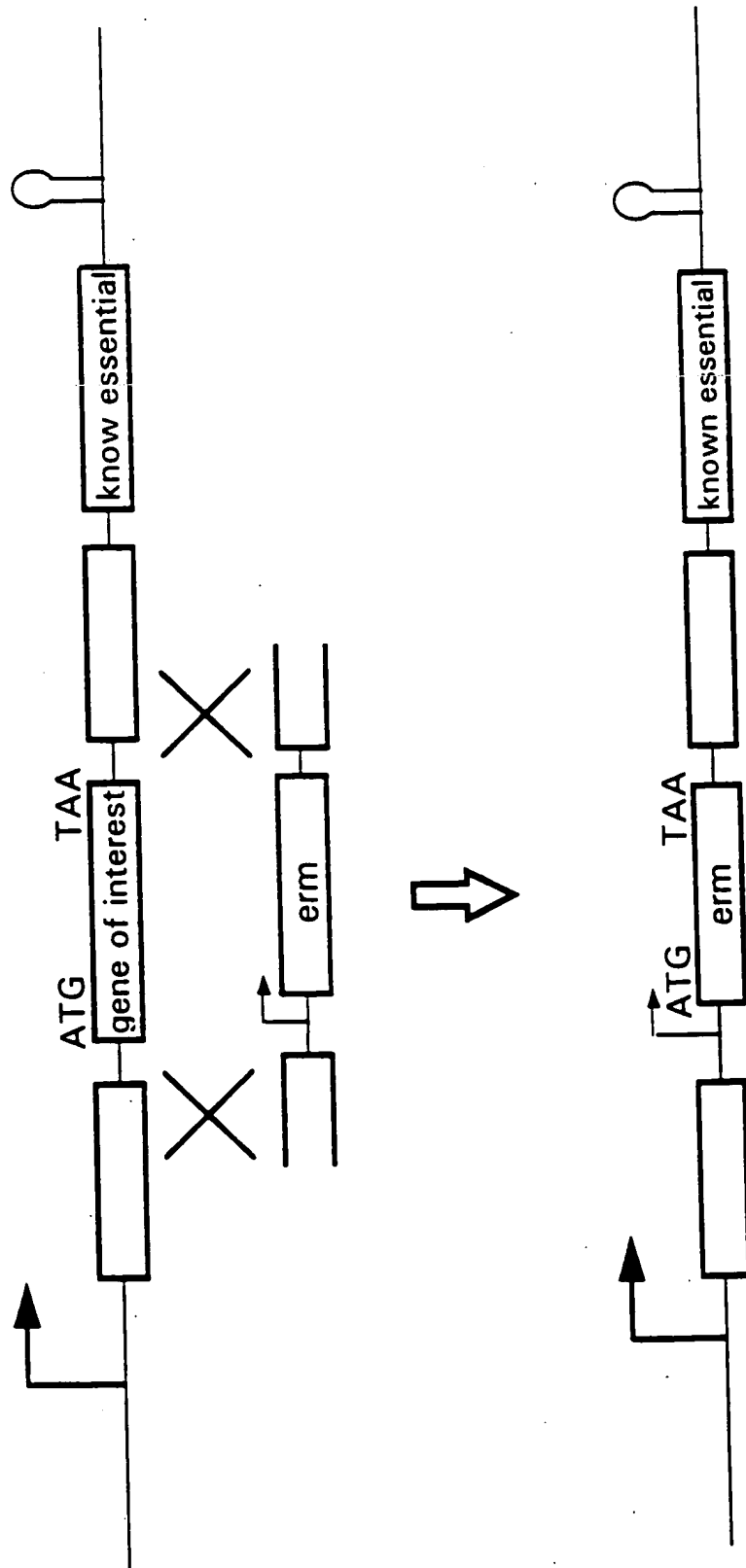


FIG. 4